

ABSTRACT OF THE DISCLOSURE

A phase-change memory device includes a phase-change memory cell having a volume of material which is programmable between amorphous and crystalline states. A write current source selectively applies a first write current pulse to program the phase-change memory cell into the amorphous state and a second write current pulse to program the phase-change memory cell into the crystalline state. The phase-change memory device further includes a restore circuit which selectively applies the first current pulse to the phase-change memory cell to restore at least an amorphous state of the phase-change memory cell.